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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/609,433	OESTERREICHER ET AL.
	Examiner	Art Unit	
	Sheng-Jen Tsai	2186	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 October 2006*.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some *   c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   This Office Action is taken in response to Applicants' Amendments and Remarks

filed on October 13, 2006 regarding application 10,609,433 filed on June 27, 2003.

2.   Claims 1, 13 and 22-23 have been amended.

Claims 1-23 are pending under consideration.

3.   ***Response to Remarks and Amendments***

Applicants' amendments and remarks have been fully and carefully considered.

Independent claims 1, 13 and 22-23 have been amended to include the new

limitation of "**... alter its operating characteristics <u>by modification of a caching rule</u>**

<u>to account for asset request frequency without disconnecting said adaptable</u>

<u>cache from</u> the media server, ..."

In response to this amendment, a new ground of claim analysis based on newly

identified references (Ulrich et al., US patent Application Publication 2002/0169827 and

Yoshida et al., US 7,043,558) has been made. Refer to the corresponding sections of

claim analysis for details.

Claim Rejections - 35 USC § 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5.   Claims 1-23 are rejected under 35 U.S.C. 102(e) as being anticipated by Ulrich et

al. (US patent Application Publication 2002/0169827).

As to claim 1, Ulrich et al. disclose **a method for reducing bus traversal** [Hot

Adding File System Processors (title)] **in a media server** [figure 2 shows the medium

server system; figure 42 shows the core portion of the media server] **comprising a**

host processor [the CPU (figure 42, 4205)], **a network interface** [the network

interface unit (figure 42, 4214)], **and a storage subsystem comprising one or more**

storage devices [the disks (figure 42, 140 and 141)], **the host processor and**

network interface being connected to a first input-output bus [the first input-output

bus is the network bus shown in figure 42, 4201], **the storage subsystem being**

connected to a second input-output bus [the second input-output bus is the storage

bus shown in figure 42, 4202], **the first and second input-output buses being**

connected via a controller [the corresponding controller is the CPU (figure 42, 4205)],

the method comprising:

providing a hot-swappable adaptable cache [the corresponding adaptable cache

comprises the data engine unit (figure 42, 4210) and the data/parity cache RAM A and

B (figure 42, 4218 and 4220); In one embodiment, a distributed file storage system

provides hot-swapping of file servers (paragraph 0040); Disks and servers in the DFSS

can be "hot swapped" and "hot added" (meaning they can be replaced or added while

the DFSS is online and servicing file requests (paragraph 0149)] **connected to the**

first input-output bus [see figure 42], **said adaptable cache comprising a data**

interface [the data engine, figure 42, 4210; figure 43 shows the detailed structure of

the data engine], **core logic** [figure 43 shows the detailed structure of the data engine]
configured to dynamically alter its operating characteristics by modification of a
caching rule to account for asset request frequency without disconnecting said
adaptable cache from the media server and electronic storage media [Software
resident on each server collects statistics regarding file accesses and server resource
utilization. This includes information regarding the access frequency, access
bandwidth and access locality for the individual files, the loading of each disk controller
and disk storage element in terms of CPU utilization, data transfer bandwidth,
transactions per second, and the loading of each network element in terms of network
latency and data transfer bandwidth (paragraph 0140); Upon acquiring the parity group
statistics 3606, the server 130 calculates a suitable re-distribution 3608 of the parity
groups. The re-distribution 3608 desirably takes into account factors such as, for
example, the number and type of parity groups 2335 within the disk array 140, the
availability of unoccupied parity groups within each parity group type, the frequency of
usage or access of each parity group type, among other considerations that can be
determined using the parity group statistics. During parity group redistribution 3608,
one or more different parity groups can be used as a source for supplementing the
depleted parity group set. The overall effect of redistribution 3608 is to balance the
free or available parity groups of each type so that no one single parity group is
depleted (paragraph 0496); FIG. 38 illustrates one embodiment of a load balancing
method 3800 used in conjunction with the distributed file storage system 100 to provide
improved read/write performance (paragraph 0505)];

receiving a request for a media asset via a network [The file read command is received from the client (paragraph 0587) via the network interface unit (figure 42, 4214); paragraphs 0573-0574]**, said request being received by the network interface** [The file read command is received from the client (paragraph 0587) via the network interface unit (figure 42, 4214); paragraphs 0573-0574];

receiving the request at the adaptable cache [Control messages (e.g. file read/write commands from clients) are routed to the CPU 4205. The CPU 4205 processes the commands, and queues data transfer operations to the data engine 4210 (paragraph 0576)];

processing the request by the adaptable cache [The data engine 4210 provides a separate path for data flow by connecting the network interfaces 4214 and the storage interfaces 4212 with the data caches 4218, 4220. The data engine 4210 provides file data transfers between the network interface 4214 and the caches 4218, 4220 and between the storage interface 4212 and the caches 4218, 4220 (paragraph 0577)], **wherein if the requested media asset is found on the electronic storage media, the media asset is returned to the user via the first bus and not the second bus** [The CPU 4205 will use file metadata in the cache 4216 to determine if the data is already present in one of the data caches 4218, 4220, or if the data must be retrieved from the disks 140, 141. If the data is in the data cache 4218, 4220, the CPU 4205 will queue a transfer with the network interfaces 4214 to transfer the data directly from the appropriate data cache 4218, 4220 to the requesting client 110, with no further intervention by the CPU 4205 (paragraph 0577)], **and wherein if the requested**

**media asset is not found on the electronic storage media, the media asset is
accessed from the storage subsystem and returned to the user via the second
bus and first bus** [if the data is not in the data caches 4218, 4220, then the CPU 4205
will queue one or more transfers with the storage interfaces 4212 to move the data
from the disks 140, 141 to the data caches 4218, 4220, again without further
intervention by the CPU 4205. When the data is in the data caches 4218, 4220, the
CPU 4205 will queue a transfer on the network interfaces 4214 to move the data to the
requesting client 110, again without further intervention by the CPU 4205 (paragraph
0577)].

As to claim 2, Ulrich et al. teach that **the request is received at the adaptable
cache via the host processor** [Control messages (e.g. file read/write commands from
clients) are routed to the CPU 4205. The CPU 4205 processes the commands, and
queues data transfer operations to the data engine 4210 (paragraph 0576)].

As to claim 3, Ulrich et al. teach that **the request is receive' d at the adaptable
cache directly from the network interface** [figure 42; Control messages (e.g. file
read/write commands from clients) are routed to the CPU 4205. The CPU 4205
processes the commands, and queues data transfer operations to the data engine
4210 (paragraph 0576)].

As to claim 4, Ulrich et al. teach that **the adaptable cache is integrated with
the network interface** [figure 42 shows that the cache is integrated with the network
interface unit].

As to claim 5, Ulrich et al. teach that **the adaptable cache is integrated in the controller** [figure 42 shows that the cache is integrated with the CPU].

As to claim 6, Ulrich et al. teach that **the adaptable cache monitors requests for media assets and if it is determined that the media asset should be cached, the media asset is transferred from one or more storage devices to the electronic storage media** [if the data is not in the data caches 4218, 4220, then the CPU 4205 will queue one or more transfers with the storage interfaces 4212 to move the data from the disks 140, 141 to the data caches 4218, 4220, again without further intervention by the CPU 4205. When the data is in the data caches 4218, 4220, the CPU 4205 will queue a transfer on the network interfaces 4214 to move the data to the requesting client 110, again without further intervention by the CPU 4205 (paragraph 0577)].

As to claim 7, Ulrich et al. teach that **the adaptable cache monitors requests for media assets and if it is determined that the media should be cached, the adaptable cache notifies requesting applications that it can accept future requests for said media assets** [if the data is not in the data caches 4218, 4220, then the CPU 4205 will queue one or more transfers with the storage interfaces 4212 to move the data from the disks 140, 141 to the data caches 4218, 4220, again without further intervention by the CPU 4205. When the data is in the data caches 4218, 4220, the CPU 4205 will queue a transfer on the network interfaces 4214 to move the data to the requesting client 110, again without further intervention by the CPU 4205 (paragraph 0577)].

As to claim 8, Ulrich et al. teach that **the adaptable cache monitors requests for media assets and if it is determined that the media should be cached, the adaptable cache notifies the storage subsystem to disregard requests to deliver the media** [if the data is not in the data caches 4218, 4220, then the CPU 4205 will queue one or more transfers with the storage interfaces 4212 to move the data from the disks 140, 141 to the data caches 4218, 4220, again without further intervention by the CPU 4205. When the data is in the data caches 4218, 4220, the CPU 4205 will queue a transfer on the network interfaces 4214 to move the data to the requesting client 110, again without further intervention by the CPU 4205 (paragraph 0577)].

As to claim 9, Ulrich et al. teach that **if the requested media asset is not found on the electronic storage media, the adaptable cache stores the requested media asset on the electronic storage media** [if the data is not in the data caches 4218, 4220, then the CPU 4205 will queue one or more transfers with the storage interfaces 4212 to move the data from the disks 140, 141 to the data caches 4218, 4220, again without further intervention by the CPU 4205. When the data is in the data caches 4218, 4220, the CPU 4205 will queue a transfer on the network interfaces 4214 to move the data to the requesting client 110, again without further intervention by the CPU 4205 (paragraph 0577)].

As to claim 10, Ulrich et al. teach that **the adaptable cache integrates into the media server via an expansion card slot** [figures 42 and 43].

As to claim 11, Ulrich et al. teach that **the adaptable cache integrates with native communications busses and protocols existing on the media server** [The

controller hardware provides a control flow path from the network and storage interfaces to the host CPU. The host CPU is responsible for controlling these interfaces and dealing with <u>the high level protocols</u> <u>necessary for client communications</u>. The host CPU also has a non-volatile metadata cache for storing file system metadata (paragraph 0155)].

As to claim 12, Ulrich et al. teach that **the adaptable cache utilizes the busses and protocols existing on the media server** [The controller hardware provides a control flow path from the network and storage interfaces to the host CPU. The host CPU is responsible for controlling these interfaces and dealing with <u>the high level protocols</u> <u>necessary for client communications</u>. The host CPU also has a non-volatile metadata cache for storing file system metadata (paragraph 0155)].

As to claim 13, refer to "As to claim 1."

As to claim 14, Ulrich et al. teach that **the method of claim 13, wherein the request is received at the adaptable cache via the second input-output bus** [The CPU 4205 and the data engine 4210 also communicate with a second I/O bus 4202 shown as a storage bus (paragraph 0573)].

As to claim 15, refer to "As to claim 10."

As to claim 16, refer to "As to claim 9."

As to claim 17, refer to "As to claim 6."

As to claim 18, refer to "As to claim 7."

As to claim 19, refer to "As to claim 8."

As to claim 20, refer to "As to claim 11."

As to claim 21, refer to "As to claim 12."

As to claim 22, refer to "As to claim 1."

As to claim 23, Ulrich et al. teach **a method of simulating passive monitoring of a bus by a first component in a computer device** [the corresponding first component is the data engine (figure 42, 4210)], **comprising:** **identifying a second component** [the corresponding second component is one of the clients (figure 42, 110)] **that transmits messages** [The file read command is received from the client (paragraph 0587) via the network interface unit (figure 42, 4214); paragraphs 0573-0574] **to a third component** [the corresponding third component is the disks (figure 42, 140 and 141)], **said messages desired to be monitored by the first component** [The data engine 4210 provides a separate path for data flow by connecting the network interfaces 4214 and the storage interfaces 4212 with the data caches 4218, 4220. The data engine 4210 provides file data transfers between the network interface 4214 and the caches 4218, 4220 and between the storage interface 4212 and the caches 4218, 4220 (paragraph 0577)], **wherein said first component comprises a hot-swappable adaptable cache** [the corresponding adaptable cache comprises the data engine unit (figure 42, 4210) and the data/parity cache RAM A and B (figure 42, 4218 and 4220); In one embodiment, a distributed file storage system provides hot-swapping of file servers (paragraph 0040); Disks and servers in the DFSS can be "hot swapped" and "hot added" (meaning they can be replaced or added while the DFSS is online and servicing file requests (paragraph 0149)], **said adaptable cache comprising a data interface** [figures 42-43], **core logic** [figure 43] **configured**

to dynamically alter its operating characteristics by modification of a caching rule to account for asset request frequency without disconnecting said adaptable cache from the media server and electronic storage media [Software resident on each server collects statistics regarding file accesses and server resource utilization. This includes information regarding <u>the access frequency</u>, access bandwidth and access locality for the individual files, the loading of each disk controller and disk storage element in terms of CPU utilization, data transfer bandwidth, transactions per second, and the loading of each network element in terms of network latency and data transfer bandwidth (paragraph 0140); Upon acquiring the parity group statistics 3606, the server 130 calculates a suitable re-distribution 3608 of the parity groups. The re-distribution 3608 desirably takes into account factors such as, for example, the number and type of parity groups 2335 within the disk array 140, the availability of unoccupied parity groups within each parity group type, <u>the frequency of usage or access of each parity group type</u>, among other considerations that can be determined using the parity group statistics. During parity group redistribution 3608, one or more different parity groups can be used as a source for supplementing the depleted parity group set. The overall effect of redistribution 3608 is to balance the free or available parity groups of each type so that no one single parity group is depleted (paragraph 0496); FIG. 38 illustrates one embodiment of <u>a load balancing method</u> 3800 used in conjunction with the distributed file storage system 100 to provide improved read/write performance (paragraph 0505)]; **and**

adapting the second component to address the message to both the third

component and the first component [figure 42, The file read command is received

from the client (paragraph 0587) via the network interface unit (figure 42, 4214);

paragraphs 0573-0574; Control messages (e.g. file read/write commands from clients)

are routed to the CPU 4205. The CPU 4205 processes the commands, and queues

data transfer operations to the data engine 4210 (paragraph 0576); The data engine

4210 provides a separate path for data flow by connecting the network interfaces 4214

and the storage interfaces 4212 with the data caches 4218, 4220. The data engine

4210 provides file data transfers between the network interface 4214 and the caches

4218, 4220 and between the storage interface 4212 and the caches 4218, 4220

(paragraph 0577)].

Claim Rejections - 35 USC § 103

6.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

7.   Claims 1-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Yoshida et al. (US 7,043,558), and in view of Olarig et al. (US Patent Application

Publication 2004/0024941).

As to claim 1, Yoshida et al. disclose **a method for reducing bus traversal**

[Data Communication Apparatus and Data Communication Method (title)] **in a media**

server [figure 2 shows the medium server system, including a media server (2) and a

cache server (1)] **comprising a host processor** [The cache server 1 can be

implemented by, for example, <u>a computer having a CPU such as a micro-processor</u>, a

recording unit such as a semiconductor memory, a magnetic disk, and a

communication unit, not shown in the figure. The recording unit stores a program for

implementing functions of each element included in the cache server 1, the CPU can

control the operation of the cache server 1 by reading the program, which enables to

implement the function of each element (column 7, lines 38-45)], **a network interface**

[figure 1 shows that the media server system is connected to serve a plurality of clients

(3) via a network (4), hence must have a network interface], **and a storage**

subsystem comprising one or more storage devices [the media file storing unit

(figure 2, 103)], **the host processor and network interface being connected to a**

first input-output bus [the first input-output bus is shown in figure 2, left-hand side, as

the bus connecting the cache server (1) and the client (3) to support "delivery request"

and "streaming delivery (in case of hit)"], **the storage subsystem being connected to**

a second input-output bus [the second input-output bus is shown in figure 2, right-

hand side, as the bus connecting the cache server (1) and the storage unit (103) to

support "delivery request," "file obtainment" and "file transmission request"], **the first**

and second input-output buses being connected via a controller [the

corresponding controller is the cache server (figure 2, 1)], **the method comprising:**

providing a hot-swappable adaptable cache [the corresponding adaptable cache

comprises the cache server unit (figure 2, 1); the hot-swappable aspect is taught by

Olarig et al., see below] **connected to the first input-output bus** [figures 2-9], **said**

adaptable cache comprising a data interface [the file streaming delivery unit (figures 2-9, 19)], **core logic** [comprising the cache checking unit (figures 2-9, 10), the band controlling unit (figure 3, 14), the access frequency checking unit (figure 5, 18) and the band dynamically controlling unit (figure 6, 15)] **configured to dynamically alter its operating characteristics by modification of a caching rule to account for asset request frequency without disconnecting said adaptable cache from the media server and electronic storage media** [The access frequency checking unit 18 increments its value by 1 every time the client 3 issues the delivery request for the media file to the media server 2 and stores the delivery request for the media file. Further, at this time, if the number of delivery requests in a predetermined past time period is counted, the access frequency checking unit 18 can deal with the reduction of the frequency of access to the media file as time passes (column 11, lines 43-50); The band dynamically controlling unit 15 observes the bandwidth of the network used for obtaining the media file from the media server 2 by the media file obtaining unit 17 and dynamically determines a transmission rate according to the fluctuation in the bandwidth (column 12, lines 45-49); The data communication apparatus further includes a communication rate dynamically setting unit for dynamically setting a communication rate used for receiving the requested information data file by the file receiving unit when the file receiving unit receives the requested information data file, and in the data communication apparatus, the file receiving unit receives the requested information data file at the communication rate dynamically set by the communication rate dynamically setting unit (column 4, lines 35-44)];

receiving a request for a media asset via a network [figures 2-9, "delivery request" originated from a client (3) is received by the cache checking unit (10) via a network (figure 1, 4)], **said request being received by the network interface** [figure 1 shows that the media server system is connected to serve a plurality of clients (3) via a network (4), hence must have a network interface];

receiving the request at the adaptable cache [figures 2-9, cache checking unit and the cache file storing unit; abstract];

processing the request by the adaptable cache [A client sends a delivery request for a streaming delivery of a specific media file to a media server, and a cache checking unit of the cache server checks if the requested media file is stored in a cache file storing unit as a cache file. If it is stored, a file streaming delivering unit performs the streaming delivery to the client using the cache file. If not stored, the cache checking unit transfers the delivery request to the media server, and the media server performs the streaming delivery, and in parallel with the streaming delivery, at the cache server, a media file obtaining unit obtains the requested media file from the media server and stores the requested media file in the cache file storing unit (abstract)], **wherein if the requested media asset is found on the electronic storage media, the media asset is returned to the user via the first bus and not the second bus** [If it is stored, a file streaming delivering unit performs the streaming delivery to the client using the cache file (abstract); figures 2-9, the data path associated with the "in case of hit"], **and wherein if the requested media asset is not found on the electronic storage media, the media asset is accessed from the**

storage subsystem and returned to the user via the second bus and first bus [If

not stored, the cache checking unit transfers the delivery request to the media server,

and the media server performs the streaming delivery, and in parallel with the

streaming delivery, at the cache server, a media file obtaining unit obtains the

requested media file from the media server and stores the requested media file in the

cache file storing unit (abstract); figures 2-9, the data path associated with the "in case

of mis-hit"].

   With respect to claim 1, Yoshida et al. do not mention **providing a cache that is**

hot-swappable.

   However, Olarig et al. teach in their invention "Method and Apparatus for

Supporting Hot-Plug cache Memory" a method and apparatus to allow cache memory

modules to be inserted and/or removed without shutting down the power of the system.

   Hot insertion and removal of cache memory devices allows the system to

continue its operation while replacing a faulty component, thus increase the throughput

of the system.

   Therefore, it would have been obvious for one of ordinary skills in the art at the

time of Applicant's invention to recognize the benefits of hot-swappable cache memory

components, as demonstrated by Olarig et al., and to incorporate it into the existing

apparatus disclosed by Yoshida et al. to further enhance the throughput of the system.

   As to claim 2, Yoshida et al. teach that **the request is received at the**

adaptable cache via the host processor [The cache server 1 can be implemented

by, for example, <u>a computer having a CPU such as a micro-processor</u>, a recording unit

such as a semiconductor memory, a magnetic disk, and a communication unit, not

shown in the figure. The recording unit stores a program for implementing functions of

each element included in the cache server 1, the CPU can control the operation of the

cache server 1 by reading the program, which enables to implement the function of

each element (column 7, lines 38-45)].

As to claim 3, Yoshida et al. teach that **the request is receive' d at the**

adaptable cache directly from the network interface [figure 1 shows that the media

server system is connected to serve a plurality of clients (3) via a network (4), hence

must have a network interface].

As to claim 4, Yoshida et al. teach that **the adaptable cache is integrated with**

the network interface [figure 1 shows that the cache is integrated as part of the

network interface unit].

. As to claim 5, Yoshida et al. teach that **the adaptable cache is integrated in**

the controller [The cache server 1 can be implemented by, for example, a computer

having a CPU such as a micro-processor, a recording unit such as a semiconductor

memory, a magnetic disk, and a communication unit, not shown in the figure. The

recording unit stores a program for implementing functions of each element included in

the cache server 1, the CPU can control the operation of the cache server 1 by reading

the program, which enables to implement the function of each element (column 7, lines

38-45)].

As to claim 6, Yoshida et al. teach that **the adaptable cache monitors requests**

for media assets and if it is determined that the media asset should be cached,

the media asset is transferred from one or more storage devices to the electronic

storage media [If not stored, the cache checking unit transfers the delivery request to

the media server, and the media server performs the streaming delivery, and in parallel

with the streaming delivery, at the cache server, a media file obtaining unit obtains the

requested media file from the media server and <u>stores the requested media file in the</u>

<u>cache file storing unit</u> (abstract)].

As to claim 7, Yoshida et al. teach that **the adaptable cache monitors requests**

for media assets and if it is determined that the media should be cached, the

adaptable cache notifies requesting applications that it can accept future

requests for said media assets [If not stored, the cache checking unit transfers the

delivery request to the media server, and the media server performs the streaming

delivery, and in parallel with the streaming delivery, at the cache server, a media file

obtaining unit obtains the requested media file from the media server and stores the

requested media file in the cache file storing unit (abstract); The data communication

apparatus further includes a communication rate dynamically setting unit for

<u>dynamically setting a communication rate</u> used for receiving the requested information

data file by the file receiving unit when the file receiving unit receives the requested

information data file, and in the data communication apparatus, the file receiving unit

receives the requested information data file at the communication rate dynamically set

by the communication rate dynamically setting unit (column 4, lines 35-44)].

As to claim 8, Yoshida et al. teach that **the adaptable cache monitors requests**

for media assets and if it is determined that the media should be cached, the

adaptable cache notifies the storage subsystem to disregard requests to deliver the media [If it is stored, a file streaming delivering unit performs the streaming delivery to the client using the cache file (abstract)].

As to claim 9, Yoshida et al. teach that **if the requested media asset is not found on the electronic storage media, the adaptable cache stores the requested media asset on the electronic storage media** [If not stored, the cache checking unit transfers the delivery request to the media server, and the media server performs the streaming delivery, and in parallel with the streaming delivery, at the cache server, a media file obtaining unit obtains the requested media file from the media server and stores the requested media file in the cache file storing unit (abstract)].

As to claim 10, Yoshida et al. teach that **the adaptable cache integrates into the media server via an expansion card slot** [figure 7 shows that the components of the adaptable cache are modularized to be ready to be plugged into a PCI bus; further, it is also possible to integrate the processor (i.e., the controller, figure 7, 21), the NIP local memory (i.e., the cache, figure 7, 22) and the PCI bus (figure 7, 26) into an ASIC called bridge chip (column 5, lines 1-12). Hence the adaptable cache can be made an expansion card to be plugged into a slot on a PCI bus].

As to claim 11, Yoshida et al. teach that **the adaptable cache integrates with native communications busses and protocols existing on the media server** [execute protocols in order to communications using HTTP and TCP/IP (column 1, lines 27-34; column 5, lines 15-20)].

As to claim 12, Yoshida et al. teach that **the adaptable cache utilizes the busses and protocols existing on the media server** [execute protocols in order to communications using HTTP and TCP/IP (column 1, lines 27-34; column 5, lines 15-20)].

As to claim 13, refer to "As to claim 1."

As to claim 14, refer to "As to claim 13."

As to claim 15, refer to "As to claim 10."

As to claim 16, refer to "As to claim 9."

As to claim 17, refer to "As to claim 6."

As to claim 18, refer to "As to claim 7."

As to claim 19, refer to "As to claim 8."

As to claim 20, refer to "As to claim 11."

As to claim 21, refer to "As to claim 12."

As to claim 22, refer to "As to claim 1."

As to claim 23, Yoshida et al. teach **a method of simulating passive monitoring of a bus by a first component in a computer device** [the corresponding first component is the cache server (figure 8, 1)], **comprising:**

identifying a second component [the corresponding second component is one of the clients A, B or C (figure 8, 3)] **that transmits messages** [the delivery request message] **to a third component** [the corresponding third component is the media server (figure 8, 2)], **said messages desired to be monitored by the first component** [the delivery request message is monitored by the cache data checking

unit (figure 8, 10) of the cache server (figure 8, 1)], **wherein said first component comprises a hot-swappable adaptable cache** [the hot-swappable aspect is taught by Olarig et al, refer to "As to claim 1"], **said adaptable cache comprising a data interface** [the streaming data delivering unit (figure 8, 12) and file streaming delivering unit (figure 8, 19)], **core logic** [comprising the cache checking unit (figures 2-9, 10), the band controlling unit (figure 3, 14), the access frequency checking unit (figure 5, 18) and the band dynamically controlling unit (figure 6, 15)] **configured to dynamically alter its operating characteristics by modification of a caching rule to account for asset request frequency without disconnecting said adaptable cache from the media server and electronic storage media** [The access frequency checking unit 18 increments its value by 1 every time the client 3 issues the delivery request for the media file to the media server 2 and stores the delivery request for the media file. Further, at this time, if the number of delivery requests in a predetermined past time period is counted, the access frequency checking unit 18 can deal with the reduction of the frequency of access to the media file as time passes (column 11, lines 43-50); The band dynamically controlling unit 15 observes the bandwidth of the network used for obtaining the media file from the media server 2 by the media file obtaining unit 17 and dynamically determines a transmission rate according to the fluctuation in the bandwidth (column 12, lines 45-49); The data communication apparatus further includes a communication rate dynamically setting unit for dynamically setting a communication rate used for receiving the requested information data file by the file receiving unit when the file receiving unit receives the requested information data file,

and in the data communication apparatus, the file receiving unit receives the requested

information data file at the communication rate dynamically set by the communication

rate dynamically setting unit (column 4, lines 35-44)]; **and**

adapting the second component to address the message to both the third

component and the first component [figure 8, the clients send delivery requests to

the cache server, which causes the cache server sends delivery requests to the media

server in case of a "mis-hit"].

8.   *Related Prior Art of Record*

The following list of prior art is considered to be pertinent to applicant's invention,

but not relied upon for claim analysis conducted above.

- Asano et al., (US 6,327,614), "Network Server Device and File management

  System Using cache Associated with Network Interface Processors for

  Redirecting Requested Information between Connection Networks."

- Ofer, (US 6,189,080), "Minimum Read Rate Throughput in a Disk Cache

  System."

- Gotoh et al., (US 6,728,850), "Storage Control System."

- Anderson, (US 5,561,823), "Monitor System for Determining the Available

  Capacity of a Read Buffer and a Write Buffer in a Disk Drive System."

- Lasker et al., (US 5,586,291), "Disk Controller with Volatile and Non-Volatile

  Cache Memories."

- Lautzenheiser, (US 5,353,430), "Method of Operating a Cache system Including Determining an Elapsed Time or Amount of Data Written to Cache Prior to Writing to Main Storage."

- Singh, (US 6,665,704), "Bounding Delays and Reducing Threading Overheads in caching."

- Strothmann et al., (US Patent Application Publication 2004/0093288), "Methods and Systems for Pricing an Inventory Unit."

- Jilk, Jr. et al., (US Patent Application Publication 2002/0010746), "System, Method, Apparatus and Computer Program Product for Operating a Web Site by Electronic Mail."

- Hu et al., (US 6,535,518), "System for Bypassing a Server to Achieve Higher Throughput between Data Network and Data Storage System."

- Young et al., (US 5,761,458), "Intelligent Bus Bridge for Input/Output Subsystem in a Computer System."

Conclusion

9.   Claims 1-23 are rejected as explained above.

10.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

11. Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Sheng-Jen Tsai whose telephone number is 571-272-

4244. The examiner can normally be reached on 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Matthew Kim can be reached on 571-272-4182. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Sheng-Jen Tsai
Examiner
Art Unit 2186

November 8, 2006

PIERRE BATAILLE
PRIMARY EXAMINER
11\08\06